

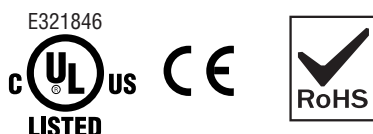
SERIES AI25 SSI

ACURO

Absolute Encoder

Key Features

- Up to 17 Bit True Singleturn Positioning
- Onboard Diagnostics
- SSI Interface



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Single-turn Resolution: 10, 12, 13, 14, 17 Bit

Multi-turn Resolution: 12 bit (only available with 12 or 13 bit ST resolution)

Linearity: +/- 1/2 LSB

Absolute Accuracy: $\pm 0.01^\circ$ mechanical (36 arc-sec.)

Repeatability: $\pm 0.002^\circ$ mechanical (7.2 arc-sec.)

Code format: Binary, Gray, Gray Excess, parameterization through *AcuroSoft*

Parameterization: Resolution code type, sense of rotation, warning, alarm

Electrical

Connection: Cable, M23 - 12 pole Conin connector, M12 - 8-pole connector

Supply voltage: 5 VDC -5%/+10% or 10-30 VDC

Intrinsic current consumption: 50 mA (ST), 100 mA (MT) not including output current

Output current: 60 mA per bit, short circuit protected

Frequency response: 500 kHz

Maximum cable length: 400 m

Control Inputs: Direction

Alarm output: Alarm bit

Status LED: Green = OK, Red = Alarm (IP64 only)

Preset Switch: Sets encoder to zero output at present mechanical position (IP64 only)

MECHANICAL

Shaft diameter:

Shaft: 6 mm (Servo Mount), 10 mm (Clamping

Mount), 3/8" (Square Flange Mount)

Hubshaft: 10mm, 12 mm, 3/8", 1/2"

Maximum shaft load:

6 mm shaft: 13 lb axial, 24 lb radial

10 mm shaft: 24 lb axial, 35 lb radial

Maximum shaft speed: 10,000 RPM (continuous), 12,000 RPM (peak)

Starting torque: < 1.4 in-oz

Weight (approx.): 350 g ST, 400 g MT

Shaft tolerance (hubshaft only): +/- 1.5 mm axial, +/- 0.2 mm radial

Flange configurations: Square, Clamp, Servo, Hubshaft with flexible tether

Bearing life:

1 x 10¹⁰ revolutions at 35% full rated shaft load

1 x 10⁹ revolutions at 75% full rated shaft load

1 x 10⁸ revolutions at 100% full rated shaft load

ENVIRONMENTAL

Operating Temperature: -40 to 100° C

Storage Temperature: -40 to 100° C

Enclosure Rating: IP64 or IP67

Shock: 1,000 m/s² (6 ms)

Vibration: 100 m/s² (10 to 2,000 Hz)

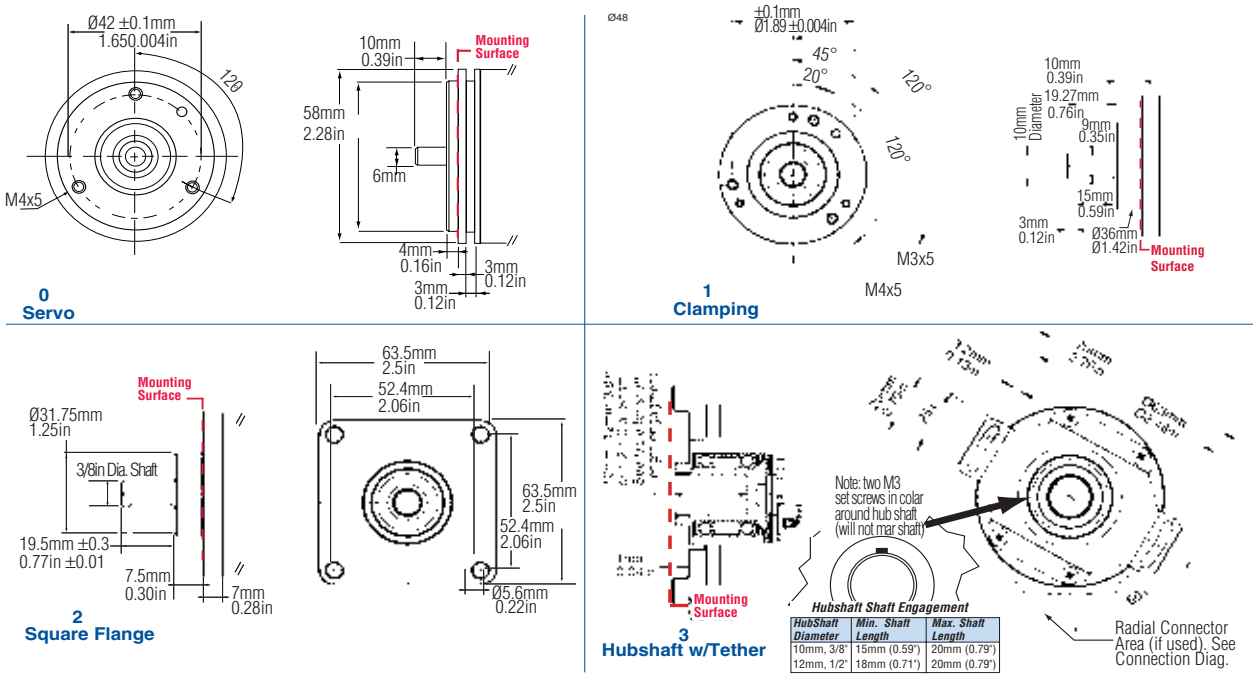
Ordering Information

To order, complete the model number with code numbers from the table below:

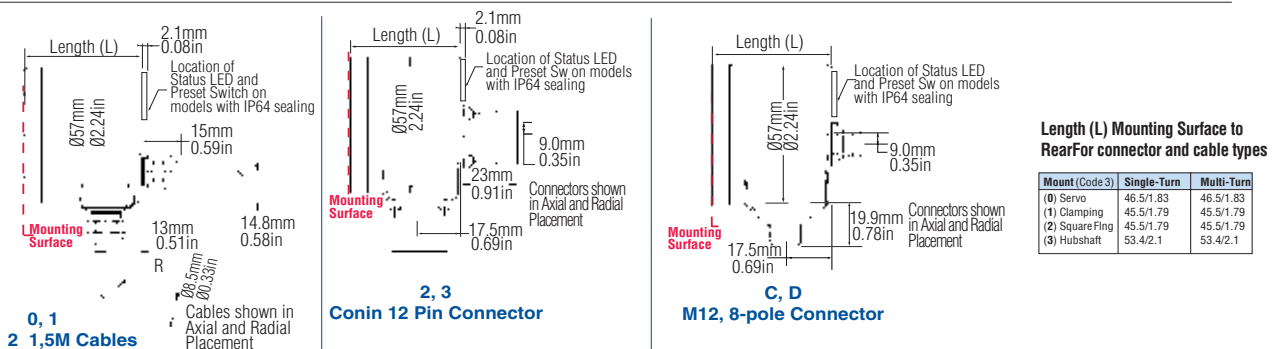
Code 1: Model	Code 2: Bits	Code 3: Mounting	Code 4: Shaft Size	Code 5: Protocol	Code 6: Electrical	Code 7: Connector
AI25	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AI25 Size25 Acuro Absolute Encoder	Single-Turn 0010 10 Bit 0012 12 Bit 0013 13 Bit 0014 14 Bit 0017 17 Bit Multi-Turn 1212 12 Bit Multi-Turn, 12 Bit Single-Turn 1213 12 Bit Multi-Turn, 13 Bit Single-Turn	Available when Code 4 is 0 or A 0 Servo* Available when Code 4 is 2 or C 1 Clamping* Available when Code 4 is 1 or B 2 Square flange** Available when Code 4 is 3, 4, 5 or 6 3 Hubshaft w/tether† * 58mm Dia. ** 2.5" Square † 63mm BC	w/o shaft seal (IP64) 0 6 mm 1 3/8" 2 10 mm 3 3/8" Hub Shaft 4 12 mm Hubshaft 5 1/2" Hubshaft 6 10 mm Hub Shaft w/ shaft seal (IP67) A 6 mm B 3/8" C 10 mm	2 SSI Gray 3 SSI Binary	0 5 VDC 2 10-30 VDC	0 1.5m axial cable 1 1.5m radial cable 2 M23 Conin 12 pin axial CW 3 M23 Conin 12 pin radial CW 4 M23 CCW axial 5 M23 CCW Radial C M12, 8-pole connector axial D M12, 8-pole connector radial

DIMENSIONS

Code 3: Mounting



Code 7: Connector



SERIES AI25 SSI



SSI Data Format

Bits	T1 - T10	T11	T12	T13	T14	T15	T16	T17	T18	T19
10	S9 - S0	0	0	0	0	S9	S8	S7	S6	S5
12	S11 - S2	S1	S0	0	0	S11	S10	S9	S8	S7
13	S12 - S3	S2	S1	S0	0	S12	S11	S10	S9	S8
14	S13 - S4	S3	S2	S1	S0	0	S13	S12	S11	S10
17	S16 - S7	S6	S5	S4	S3	S2	S1	S0	0	S16

Bits	T1 - T12	T13 - T21	T22	T23	T24	T25	T26	T27	T28	T29
1212	M11 - M0	S11 - S3	S2	S1	S0	0	0	M11	M10	M9
1213	M11 - M0	S12 - S4	S3	S2	S1	S0	0	M11	M10	M9

S9, S8 Data Bits for resolution per turn.

S9 - S0 Data Bits S9, S8, S7, S6, S5, S4, S3 Etc.

M11, M10 Data Bits for number of turns.

M11- M0 Turn Data Bits M11, M10, M9, M8, Etc.

T1, T2 SSI Clock number

ELECTRICAL CONNECTIONS

Electrical Connections 12 pin CONIN

Wire Color	Pin	Function
Brown	1	0V
Pink	2	Data
Yellow	3	Clock
—	4	N.C.
Blue	5	Direction
Red	6	N.C.
Violet	7	N.C.
White	8	5V/10-30V
—	9	N.C.
Gray	10	Data
Green	11	Clock
Black	12	0 V Data

12 pin CONIN Connector **Part Number: G3 539 202**

Bulk Cable (sold by the meter) **Part Number: 113101-0001**

Cable Assembly (with Connector)

3 meters **Part Number: G1 542 003**

5 meters **Part Number: G1 542 004**

10 meters **Part Number: G1 542 005**

Electrical Connections 8 pin M12

Wire Color	Pin	Function
White	1	5/10-30 Volt
Brown	2	0 Volt
—	3	N.C.
Green	4	Clock
Pink	5	Data
Yellow	6	Clock
Blue	7	Direction
Gray	8	Data

8 pin M12 Connector **Part Number: G3 539 597**

Bulk Cable (sold by the meter) **Part Number: G3 280 220**

Cable Assembly (with Connector)

3 meters **Part Number: G1 565 329**

5 meters **Part Number: G1 565 330**

10 meters **Part Number: G1 565 331**